

The Summit on Management of Radiation Dose in Computerized Tomography: *Toward the Sub-mSv Exam*

Bethesda North Marriott Hotel and Conference Center | Bethesda, Maryland
February 24–25, 2011

Agenda

This is an NIH, CIBR sponsored and FDA, ACR, and ACC supported conference focused on transforming CT technology and its use to achieve minimal public health risks from radiation exposure. A specific goal is to identify the technological steps and associated research required to reduce the routine CT exam dose to less than one mSv. Additional goals in the near term are improving our understanding and management of radiation exposure and defining steps to achieve best practices.

Day 1

8:15 a.m. Welcome and Charge to Participants
Roderic Pettigrew, Steven Seltzer, and Jeffrey Shuren

Session I. Where We Are Now Moderator: Norbert Pelc

Overview of the Health Care Impact of CT

8:30 a.m. The Rational Use of CT in Medicine: Benefit vs. Risks
Hedvig Hricak

8:55 a.m. Nature and Scale of Radiation Risk
William Hendee

State of the Art for CT Scanners and Their Use in Clinical Imaging

9:25 a.m. The State of the Art in CT Technology
Richard Mather

9:50 a.m. Variations in the Field: CT Equipment and Protocol Differences
Cynthia McCollough

10:15 a.m. *Break*

Current Approaches for Radiation Dose Reduction in Clinical Imaging

10:40 a.m. Practical Dose Reduction Techniques in Adults
Mannudeep Kalra

11:05 a.m. Approaches to Radiation Dose Reductions in Pediatrics—*Image Gently* Campaign
Donald Frush

11:30 a.m. Panel Discussion: The Rational Use of Advanced CT: The Knowledge Gaps
William Bradley, Andrew Einstein, co-moderators
Panelists: Cynthia McCollough, Mannudeep Kalra, Donald Frush, William Hendee, and David Brenner

12:10 p.m. *Lunch (Sponsored by CIBR)*

Session II. Opportunities to Improve
Moderator: Richard Morin

The Personalized Exam

1:15 p.m. Patient and Clinical History Specific Protocols
Leslie Quint

1:40 p.m. Organ Dose Estimates: Obtaining a More Accurate Picture
Michael McNitt-Gray

Future Dose Reduction Without Compromise of Image Quality

2:00 p.m. AAPM Working Group Goals for Reducing CT Dose: Protocol Parameters, Dose Check, and Nomenclature Standardization
Dianna Cody

2:15 p.m. Observations from the ACR CT Accreditation Program: Areas of Success and Areas for Improvement
James Brink

2:30 p.m. Relationship Between Photon Count, Dose and Image Quality
John Boone

3:00 p.m. ***Break***

3:20 p.m. Minimizing Dose in Clinical Protocols Using Simulation Tools
Norbert Pelc

3:50 p.m. Decision Support Systems to Optimize Utilization and Risk/Benefit
Steven Seltzer

4:20 p.m. Panel Discussion: Opportunities for Improved CT Benefit vs. Risks: Challenges and Solution

Steven Seltzer, Allen Taylor, co-moderators

Panelists: Richard Morin, Kyle Myers, James Brink, John Boone, and James Thrall

5:00 p.m. ***Break***

6:00 p.m. ***Dinner***

Presentation: The Sub-mSv Challenge
James Thrall

Discussion

Day 2

Session III. Steps Needed to Achieve the Sub-mSv Exam

Moderator: Kyle Myers

- 8:20 a.m. Charge to Participants
Roderic Pettigrew
- 8:30 a.m. Success Story and Lessons Learned: The Order of Magnitude Reduction in Cardiac CT Dose
Frank J. Rybicki
- 9:00 a.m. Innovations Required in Data Acquisition
Willi Kalender
- 9:35 a.m. Innovations Required in Data Reconstruction
Jeffrey Fessler
- 10:10 a.m. *Break*
- 10:30 a.m. The Emerging Promise of the Routine Sub-mSv Exam: *Just How Close Are We?*
William Heetderks, moderator
Jiang Hsieh, Efrat Shefer, and Thomas Flohr
- 11:30 a.m. Panel Discussion: Putting It All Together: What is Required for Success
Richard Ehman, moderator
Panelists: Willi Kalender, Frank Rybicki, and Jeffrey Fessler
- 12:30 p.m. *Wrap-up and Adjournment*

A working group will convene to define consensus recommendations for potential areas of research support to achieve goals outlined during the Summit.

Topics:

- (1) Imaging Technology: Future ways to minimize dose; achieve sub mSv exam**
- (2) Radiation Exposure: How to close our knowledge gaps, monitor and safeguard exposure**
- (3) Ways to Insure Best Practices**